PANDEMICS: Recommendations for International Preparedness, Response and Coordination

MATT BREW AND HAL SCHMIDT

The influenza pandemic of 1918 was one of the worst global health crises in recorded history. The influenza pandemic of 1918-1919, known as the "Spanish Flu", killed more people than World War I--estimates range somewhere between 20 and 40 million.[1] In the two years that this scourge ravaged the earth, a fifth of the world's population was infected, and more people died of influenza in a single year than in four-years of the Black Death Bubonic Plague from 1347 to 1351.[2] It is estimated that 28% of all Americans were infected.[3] The influenza virus had an intense virulence, with a mortality rate of 2.5% compared to the previous influenza epidemics, which were less than 0.1%.[4] Furthermore, the death rate for 15 to 34-year-olds of influenza and pneumonia were 20 times higher in 1918 than in previous years, which was extremely unusual since influenza typically targets the elderly and young children.[5] Its effect continues to be felt, as the United States bases its assumptions for severe pandemic response on the 1918 influenza.[6]

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The 1918 influenza pandemic represents the threat that pandemics pose to the international community, not only in terms of the toll in lives, but also the havoc pandemics and epidemics can wreak on weak governments. Age-old diseases such as cholera, tuberculosis, and malaria, coupled with emerging diseases like HIV/AIDS, SARS, H5N1 (Avian Flu), and H1N1 (Swine Flu) demonstrate that the international community cannot continue to isolate the disease challenges of one nation from other nations, conceptually or practically.[7] Increased trade and commerce and the ability of international travelers to go from New York to Beijing in less than a day evidence the ever-increasing urgency and inter-dependence of global health conditions,[8] especially the threat of pandemic disease spread. Given the current estimate global population of 6.9 billion[9], if a pandemic of the same virulence as the 1918 influenza were to spread across the globe today, 2.3 billion would be infected and 76 million would be killed. The global community cannot afford such a healthcare crisis, as even the most basic healthcare services are insufficient in many states today.

This article asserts that the United States must take an active role in mobilizing support for the establishment of a direct international convention concerning pandemic preparedness, response, and cooperation through the World Health Organization (WHO). This paper provides an overview of the current structure of international organizations and policies related to disease prevention and control, presents a summary of pandemics that currently threaten the global community, examines several case studies reflecting the deficiencies in the current pandemic preparedness and response policies on an international level, and presents recommendations for improving the readiness of the international community for preventing and dealing with pandemics.

World Health Organization

First an understanding of the function and structure of the WHO is necessary. According to the WHO Constitution, "The objective of the World Health Organization…shall be the attainment by all peoples of the highest possible level of health."[10] The International Health Conference adopted the WHO Constitution in New York from 19 June to 22 July 1946, which representatives of 61 States then signed on 22 July 1946, clearing the way for the con-

Cadet Matt Brew is an Astronautical Engineering major in the Class of 2011. Cadet Hal Schimdt is an Electrical Engineering major/ Spanish minor and "Top Grad" in the Class of 2011.

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stitution to enter into force on 7 April 1948.[11] Eighty two articles comprise the WHO Constitution, outlining the functions, membership, organs, budget, voting, legal capacity, and interpretation of the WHO.[12]

Of particular importance to preparedness and response to pandemics, the constitution outlines the following WHO functions: "to establish and maintain such administrative and technical services as may be required, including epidemiological and statistical services; to stimulate and advance work to eradicate epidemic, endemic and other diseases; to develop, establish and promote international standards with respect to food, biological, pharmaceutical and similar products…"[13] Additionally, Article 20 provides that each member state undertakes that it will take action to comply with any convention or agreement adopted by the WHA within eighteen months after the WHA agrees to adopt said convention or agreement. Following any action taken, each member state will notify the Director-General of the action taken, and if the member state is unable to the convention or agreement within the time limit, it will provide a statement explaining the the reasons for non-acceptance. In case of acceptance, each member will make an annual report to the Director-General of its status in implementing the convention or agreement."[14]

The WHO constitution establishes three bodies that carry out the functions of the WHO: the World Health Assembly (WHA), the Executive Board, and the Secretariat. The WHA is composed of delegates representing the member states, and it meets annually.[15] It is tasked with determining the policies of the organization, appointing the Director-General, reviewing and approving reports and activities of the Board and of the Director-General and instructing the Board about matters upon which action, study, investigation or report may be considered desirable.[16] Additionally, the WHA oversees the financial policies of the organization, reviews and approves the budget, instructs the Board and the Director-General to inform the member states and international organizations, governmental or non-governmental, about any matter regarding health which the WHA considers appropriate."[17]

75 percent of epidemics during the last three decades have occurred in countries where war, conflict, and prolonged political violence have crippled their capacity to respond.

The second body of the WHO is the Executive Board, which acts as the executive organ of the WHO and meets at least twice a year.[18] Its functions include advising the WHA on questions referred to it by the WHA and on issues assigned to the WHO by conventions, agreements and regulations, submitting to the WHA for consideration and approval a general program of work covering a specific period, and taking emergency measures within the functions and financial resources of the WHO to address events requiring immediate action.[19] Specifically, "it may authorize the Director-General to take the necessary steps to combat epidemics, to participate in the organization of health relief to victims of a calamity and to undertake studies and research the urgency of which has been drawn to the attention of the Board by any Member or by the Director-General."[20]

The third body of the WHO is the Secretariat, which is composed of the Director-General and any administrative and technical staff deemed necessary to the WHO's operation.[21] The Director-General is responsible for managing and reporting to the Executive Board on the budget and expenses of the WHO.[22] Additionally, and of interest in relation to pandemic preparedness, the Director-General (or his representative) may establish procedures by agreement of the member states that permit him direct access to their various health administrations and national health organizations, governmental or non-governmental.[23] It is important to note that this access may only occur with express permission of the member states. Moreover, he may establish direct relations with international organizations whose activities and efforts come within the areas of responsibility of the WHO."[24]

According to Professor Allyn Taylor of the Georgetown University Law Center, "The foundation of the WHO's unique responsibility to implement the right to health is the organization's affiliation with the United Nations system as a specialized agency."[25] The United Nations charter provides the basis for the relationship between the UN and WHO—specifically those sections that establish UN as the "directing and coordinateing authority on international health work."[26] The WHO assumes the chief responsibility to execute the aims of the UN Charter with respect to health and disease mitigation.[27] With specific focus on the preventing and limiting the spread of diseases, the WHO promulgated the International Health Regulations (IHR).

International Health Regulation

According to the WHO, the "International Health Regulations (IHR) are an international legal instrument that is binding on 194 countries across the globe, including all the Member States of

WHO. Their aim is to help the international community prevent and respond to acute public health risks that have the potential to cross borders and threaten people worldwide,"[28] while limiting interference with global travel and global commerce. The WHA adopted the original IHR in 1969, having been preceded by the International Sanitary Regulations of 1951, which Fourth World Health Assembly adopted.[29] The 1969 Regulations, which initially covered six "quarantinable diseases" were amended in 1973 and 1981, primarily to reduce the number of covered diseases from six to three (yellow fever, plague and cholera) and to mark the global eradication of smallpox."[30] The 2005 revisions to the IHR, which entered into force on 15 June 2007, "require countries to report certain disease outbreaks and public health events to WHO."[31] The impetus to update them in 2005 was the 2003 SARS epidemic that began in China. As the WHO Director-General at the time stated, "SARS has shown us the size of the challenges we face. These new measures will help us respond even more effectively to the next public health threat."[32]

The updated IHR have in theory significantly improved the international community's abilities and resources to respond to the spread of disease. In particular, the IHR 2005 created decision instrument criteria that facilitate more rapid assessment and notification of health/disease events.[33] Under the IHR, state parties are required to assess at the national level all reports of urgent events inside their territories within 48 hours by applying the decision instrument specified by the IHR.[34] This instrument provides state parties with the parameters used to decide whether or not a specific event needs to be notified to WHO under the 2005 update to the IHR. When a state party identifies a notifiable event, it must report it to WHO within 24 hours of assessing the public health information related to the event.[35] Notification must "include details of any health measure employed in response to the event as well as accurate and sufficiently detailed public health information available, including case definitions, laboratory results and number of cases and deaths."[36]

As mentioned above, the 2005 IHR establishes a decision instrument for states to use in assessing whether or not public health events qualify as "notifiable". According the IHR, the four decision criteria are: "(1) the seriousness of the event's public health impact; (2) the unusual or unexpected nature of the event; (3) the risk of international disease spread; and (4) or the risk that travel or trade restrictions will be imposed by other countries."[37] Events that meet one or more of the criteria must be assessed by the state party, and those that meet two or more of the criteria must be notified to the WHO.[38] The IHR is a key factor in current international policy on preventing and responding to pandemic diseases, as well as on cooperation to mitigate their effects.

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New Threats

The primary factors making pandemic preparedness a crucial issue for international security are the resurgence of the some of the human race's oldest nemeses in the forms of cholera, malaria, and tuberculosis, the ongoing HIV/AIDS pandemics[39], and the more recent outbreaks of SARS, H5N1, and H1N1.

SARS

China's failure to disclose information concerning the Severe Acute Respiratory Syndrome (SARS) epidemic in early 2003 prompted World Health Assembly resolutions to update International Health Regulations which would in turn broad outbreak control measures and expand information-sharing.[40] Due to surveillance and investigation limitations of the previous regulations within sovereign nations, the viral respiratory illness spread from Guangdong, China to over 40 countries around the world within weeks, resulting in 8,098 infections and 774 deaths before the outbreak was finally contained.[41] While press reports claim that new WHA resolutions give WHO greater "power" and "authority" to combat international threats posed by infectious diseases, this case study will determine if the revisions will indeed do more to mitigate and prevent modern-day diseases in the interconnected world.[42]

Severe Acute Respiratory Syndrome is a respiratory illness caused by the SARS-associated coronavirus (SARS-CoV). It typically begins with a fever of 104.1° F or more and may include other symptoms such as headache, discomfort, and body aches. Some people have mild respiratory symptoms at the start and after 2-7 days may develop a dry cough that leads to pneumonia. Severe diarrhea occurs when SARS attacks the digestive system in about 10-20% of patients. The infection spreads primarily through close person-to-person contact; the virus that causes SARS, in particular, is transmitted most readily through indirect contact by infected droplets that are inhaled or land on a surface or object when a person coughs or sneezes. When another person touches the

contaminated surface and then touches their mouth, nose, or eyes, the virus is passed on. Those at risk of becoming infected with SARS include people age 40 or older, especially those over 65, and people with other medical conditions or returning illnesses that weaken the immune system. Health care workers and family members of someone who is infected with SARS are also at risk. As one might expect, health care workers were most affected from the SARS epidemic in 2003.[43]

The first case of SARS was reported in the southern province of Guangdong, China in November 2002. The patient was a farmer who, despite being attended to at a local hospital, died soon after without a known cause of death. Suddenly, five people were reported dead in an outbreak of a flu type virus. While the Chinese government took initial action to prevent the spread of the infection, it did not notify the WHO of the "Atypical Pneumonia" outbreak until February 2003 when it became clear that it could not contain the epidemic. Even then, the information was vague. This unwillingness to cooperate with the international community ultimately meant delays in efforts to control the worldwide outbreak.

In February, cases began appearing in Vietnam when an American businessman traveling from China was treated for pneumonia type symptoms in Hanoi and the medical staff assisting him developed the disease. Doctor Carlo Urbani at the hospital identified the unusual outbreak and informed the WHO and Vietnamese government. He too would later die from the disease after being exposed to it. The severity of the SARS symptoms and rapid infection of health care workers worried international health authorities of a new pneumonia epidemic. Thus, in March 2003, the WHO issued its first global alert about SARS. When a doctor treating the first affected people in Hong Kong stayed at a hotel in the Kowloon Peninsula, he infected 16 of the hotel visitors. The WHO later issued its first SARS-related travel advisory when cases were reported in Singapore, Canada, Hong Kong, and the United States as a result of those visitors traveling. The WHO coordinated international effort to identify and treat SARS. Experts from the Organization were even provided to assist the Chinese Ministry of Health in epidemiological and laboratory support upon request.

US AIRMAN PROVIDING VACCINE TO COLOMBIAN WOMAN AND CHILD

At the end of March, the Hong Kong Department of Health issued isolation orders for the Amoy Garden housing estate where 213 people had already been admitted to the hospital for SARS to prevent spread beyond the 15,000 residents of the estate. In April, China began quarantining citizens with SARS to camps and resorts to further isolate the infection. Also in April, criticism in China and abroad emerged concerning the undercounting of SARS cases in hospitals. When cases would be identified as "probable" in Taiwan, cases in Shanghai would be identified as "suspected" and death cases due to SARS were reported as being due to other complications.[44] Finally, under mounting pressure, Chinese officials allowed international officials to investigate the situation. It revealed an old healthcare system with bureaucracy and a lack of communication in an attempt to convince its citizens and the world that everything had been going smoothly. China finally decided to cooperate with the WHO and updated their total cases to 1190 with 46 deaths. On June 26, 2003, the WHO stated that "the global public health emergency caused by the sudden appearance and rapid spread of SARS is coming to an end."[45] Regrettably, the end came with a total of 774 deaths.

In order to prevent sovereign nations from similarly hiding or masking the effects of an epidemic, the WHA adopted two resolutions on SARS and international law on infectious disease control at its 56th Annual Meeting.[46] The SARS resolution advises WHO member states to take eleven courses of action to "enhance, support, and strengthen national, regional, and international efforts to address the SARS outbreak."[47] The resolution does not create new obligations, but simply recommends that WHO member states report SARS cases quickly and transparently. The resolution also requests the WHO Director-General take eleven steps to

respond to SARS. Each request, like the request to "strengthen the functions of WHO's Global Outbreak Alert and Response Network," falls into existing areas of WHO policy for disease control, meaning WHO powers have not really increased. [48]

According to David Fidler, the IHR resolution also does not change existing international law by giving WHO more power and authority. The WHO Constitution states that WHA resolutions are not legally binding. For instance, the WHA can adopt treaties or IHR, but they only become binding international law when a WHO member state has agreed to be bound. The provision of the resolution to consider information attained from non-governmental sources and to check it using disease study principles had already been approved by the WHA.[49] The WHO's Global Outbreak Alert and Response Network had been using that technique since it was created in 1998. Unfortunately it seemed unacknowledged during its existence that while the network provided opportunities for greater surveillance, it also posed challenges to make sure government responses to outbreaks were appropriate. Likewise, the provision that recommends the Director-General collaborate with national authorities in evaluating a disease threat and amount of control measures as well as performing on-the-spot studies is approved by WHO policies. The resolution does not give the WHO power to send personnel into a country to investigate an outbreak without that country's permission. As one WHO spokesman said, "any country has an ultimate veto over allowing a visitor entry; there's no way around that."[50] The right to sovereignty, then, still poses a significant challenge to effective mitigation of disease spread.

The request that the Director-General alert the international community of a serious public health threat arguably grants the WHO new political power. While WHO issued SARS related alerts throughout the outbreak, its authority to do so is not specifically stated in previous IHR or in the WHO Constitution. This does not seem to result, however, in drastic change of international law. The global alerts issued during the epidemic were met, so acceptance of this WHO capability was present before the resolution. Furthermore, WHO places the decision of how it will use its ability to issue alerts in the hands of WHO member states. According to the WHO Constitution, alerts may be issued "on the basis of criteria and procedures jointly developed with Member States."[51]

Although the resolutions do not create international law that binds its member states, they do serve as examples of "soft law," or non-binding norms, principles, and practices that influence state behavior.[52] They encourage member states to cooperate with other countries and with WHO in disease surveillance and outbreak response. The WHO cannot enforce this duty but it is still politically powerful. One reason is because the SARS outbreak has proven that international cooperation is in a country's self-interest. China suffered in public health as well as politically and economically because of its initial decision to not cooperate, and now serves as an example of what happens when a nation attempts to hide an outbreak or does not accept assistance. Another reason is that the WHO gained credibility in its response to the SARS outbreak among its member states. Coupled with new resolutions, the organization is leveraging its position to strengthen international infectious disease control.

HIV/AIDS

Acquired Immune Deficiency Syndrome (AIDS), a pandemic whose spread and adverse effects (often sickness and death) occur prevalently in, but are not limited to, fragile states and ungoverned spaces, has revealed how infectious disease can weaken and destabilize state governments.[53] According to UNAIDS, there are 33.3 million people globally living with HIV, the AIDS causing virus, of whom 22.5 million are living in sub-Saharan Africa.[54] As Dr. Peter Piot, former UNAIDS Executive Director, warns, "How can governments function, public services operate, agriculture and industry thrive, and law enforcement and militaries maintain security, when they are being stripped of able-bodied and skilled women and men."[55] Exacerbating the issue is that countries with poor governance tend to resist IHR with the intention to protect state and global populations because they appear to threaten their national sovereignty.[56] AIDS, like the SARS and H5N1 viruses, emphasizes the importance of rising above the concept of sovereignty if global pandemics are to be effectively prevented or contained.

AIDS is the potentially life-threatening final stage of the human immunodeficiency virus (HIV) infection. The virus weakens the immune system by attacking helper T cells, which serve as the "main switch" for the immune response. By the time an HIV patient is diagnosed with AIDS, which can take 10 or more years from the time of the HIV infection, the body has fought hard to defeat the virus, but is beginning to lose the battle. The immune system is crippled, giving disease-causing organisms that are common in the environment the opportunity to cause infection. When the helper T cells should be activated to fight the invader, the cell is activated instead by the viral RNA to become a virus factory for itself. The major modes of HIV transmission include unprotected sexual activity, intravenous drug use, and infected mother to the child before or during birth through the placenta.[57] Given these modes of transmission, it does not come as a surprise as to why fragile and ungoverned states are most affected by HIV and AIDS. These

REGIONAL HIV AND AIDS STATISTICS - 2009

	Adults & Children living with HIV	Adults & Children newly infected with HIV	Prevalance among adult population	Adult & child Deaths due to Aids
Sub- Saharan Africa	22.5 million	1.8 Million	5.0%	1.3 Million
Middle East and North Africa	460,000	75,000	.02%	24,000
South and South-East Asia	4.1 Million	270,000	.03%	260,000
East Asia	770,000	82,000	0.1%	36,000
Central and South America	1.4 Million	92,000	0.5%	58,000
Caribbean	240,000	17,000	1.0%	12,000
Eastern Europe and Central Asia	1.4 Million	130,000	.08%	76,000
Western and Central Europe	820,000	31,000	.02%	8500
North America	1.5 Million	70,000	.05%	26,000
Oceania	57,000	4500	.03%	1400
Total	33.3 Million	2.6 Million	.08%	1.8 Million

states often lack the health education, training, and infrastructure needed for HIV and AID prevention and treatments.

The table above shows the regional HIV and AIDS statistics. While clearly a global issue, concern is easily diverted to underdeveloped and developing parts of the world.

One of the leading organizations in combating HIV/AIDS is UNAIDS, a joint United Nations program that "leads and inspires the world in achieving universal access to HIV prevention, treatment, care and support."[58] As a UNAIDS Cosponsor, WHO is responsible for leading the response to HIV/AIDS. WHO supports the development of national HIV/AIDS treatment and care programs while increasing HIV prevention and strengthening health systems.[59] Many other organizations such as the NGO World Vision also aid in the fight against AIDS. The efforts of these organizations seem to be producing positive outcomes. From 2001 to 2009, the rate of new HIV infections in 33 countries (22 of which were from sub-Saharan Africa) decreased by at least 25%. In 2009, services to prevent mother-to-child transmission of HIV exceeded 50% worldwide. Before the end of 2010, greater than 6 million people were placed on antiretroviral treatment, or drugs that slow the replication of HIV, in low and middle income countries.[60]

Despite these achievements, there are still many areas in which to improve. For every person who starts antiretroviral treatment, two people become newly infected with HIV. Furthermore, 7,000 people a day become newly infected with HIV.[61] According to UNAIDS, "weak national infrastructures, financing shortfalls and discrimination against vulnerable populations are among the factors that continue to impede access to HIV prevention, treatment, care and support services."[62] Yet another issue is government ambivalence toward agencies providing assistance with HIV/AIDS programs and their own National AIDS Control Program.[63] Sovereign nations need to embrace the epidemic as a real problem that deserves their attention and, in many cases, external help.

H5N1

Another recent example of the challenges to current pandemic response policies was Indonesia's refusal to share H5N1 (Avian Flu) samples with WHO in late 2006. Indonesia chose not to share influenza H5N1 samples with WHO for "risk assessment (e.g., surveillance) or risk management (e.g., vaccine development) purposes."[64]

Indonesia's decision was primarily concerned with the iniquities in the global vaccine system: developing countries cannot afford vaccines developed from samples that pharmaceutical companies freely obtain from the WHO-operated Global Influenza Surveillance Network (GISN).[65] Indonesia's concerns were reinforced by WHO's acknowledgment that patents had been sought on modified versions of H5N1 samples shared through the GISN without the consent of the countries that supplied the samples. H5N1's spread and the threat of pandemic influenza heightened this perceived inequality, as experts posited that developing countries would have minimal access to vaccine for pandemic influenza without substantial changes in global vaccine production and supply.[66]

The standoff showcases the difficulties posed by the current non-binding soft law policies related to cooperation on disease spread and fundamental problems extant in the global vaccine system. Essentially, Indonesia claimed that the samples are its sovereign property and do not constitute resources that other countries or the international organizations can access and use without Indonesia's consent.[67] This claim directly contradicted the ethos and practice of sample sharing under which GISN had operated, which are based on accessing and analyzing influenza virus samples to inform development of interventions.[68] Legally, Indonesia's arguments were plausible, as WHO did not organize GISN under treaty law, so no states had treaty obligations to share samples. In addition, international law on infectious diseases applicable to Indonesia when this controversy began contained no obligations to share samples with WHO, as the 2005 revision to the IHR had not yet taken effect.[69]

In addition to exploiting basic sovereignty principles of international law, Indonesia exploited international law under the Convention on Biological Diversity (CBD), which was developed to address biological diversity.[70] The CBD recognizes that countries have sovereign control of biological resources found within their territories.[71] It is unlikely that Indonesia would have been able to successfully withhold samples once the revised IHR took effect in May 2007. However, a continued weakness of the IHR (and the current international approach to pandemic preparedness) is that is does not mandate that countries share infectious disease samples, only that states alert the WHO if public health incidents meet the decision criteria.[72]

RECOMMENDATIONS

Based on the significant threats the international community faces from diseases old and new, action must be taken to better secure the global community from the possible catastrophe of a world-wide pandemic. Two areas of focus are prominent: prevention and response. Before examining the areas from improvement, it is useful to investigate whether or not international organizations have been successful in the past in attempting to convince states to adopt international law to address multi-laterally threats to international security.

Precedent for the creation of international laws by international organizations that motivate governments to adopt appropriate legal standards to address international issues can be found in the experiences of the United Nations Environment Programme (UNEP) and the International Maritime Organization (IMO).[73] In some cases, UNEP has served as an effective lawmaking platform for nations in areas related to the human and environmental health.[74] By doing so, UNEP has significantly advanced the development of international law that is focused on local conditions and concerns.[75] UNEP has identified a variety of innovative mechanisms for securing international agreement on environmental matters. By structuring its conventions with broadly framed international agreements combined with requirements for implementation through domestically based legislation, the organization has attracted the widest possible consensus.[76]

The Montreal Protocol on Substances That Deplete the Ozone Layer to the Vienna Convention for the Protection of the Ozone Layer provides a prime example.[77] To slow the depletion of the ozone layer, UENP cultivated broad consensus among nations.[78] Under the Montreal protocol, ratifying nations are required to gradually reduce their consumption and production of particular ozone-depleting chemicals. It also states that member nations should establish domestic legislation and policies that conform to the convention.[79] Many governments established national legislation in conformity with the treaty, including the United States, Mexico, and twelve European nations."[80]

The International Maritime Organization ("IMO") has also employed agreements that appeal to a broad base of nations, coupled with nationally crafted implementation measures, to secure adoption of international agreement on marine environmental matters.[81] As a consequence of the 1989 Exxon Valdez oil spill, IMO convinced nations to take action on the grave threat posed by oil pollution, and encouraged adoption of the International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC).[82] According to the convention, "Parties to the OPRC convention are required to establish measures for dealing with pollution incidents, either nationally or in co-operation with other countries."[83] In addition to wide-ranging measures for emergency international response, the treaty mandates that each nation institute its own national system for preparedness and

response, including a national contingency plan.[84] As of March 2011, 105 states, including the United States, have signed the OPRC.[85]

The success of UNEP and IMO illustrate that international organizations can have significant influence on developing international hard law. The OPRC serves as an excellent model for a global convention on pandemics, perhaps even titled "The International Convention on Pandemic Preparedness, Response and Cooperation" (ICPPRC). The convention would specify mandate that state parties take certain precautions against pandemic spread, establish mandatory reporting procedures, and make it incumbent upon developed state parties to aid lesser developed parties in dealing with pandemic outbreaks. The United States should sponsor and promote the adoption of such a convention through the mechanisms of the WHO and IHR, while emphasizing the multi-lateral nature of the convention.

The ICPPRC would reinforce the efforts of WHO's already established Global Outbreak Alert and Response Network (GOARN). The stated primary aims of GOARN are to:

Assist countries with disease control efforts by ensuring rapid and appropriate technical support to affected populations, investigate and characterize events and assess risks of rapidly emerging epidemic disease threats, and support national outbreak preparedness by ensuring that responses contribute to sustained containment of epidemic threats.[86]

The ICPPRC would give GOARN more financial and technical resources to accomplish its objectives of better securing the global community against the threat of pandemics and mitigating their effects, as well as provide GOARN with better access to nation's populations for study and research.

The first requirement of the convention would be to set aside an international pandemic emergency fund for use in case of a pandemic outbreak in a country that ratifies the convention. This fund would be used to provide vaccine research and production for the disease in question and medical care for infected persons. Release authority for funds would fall to GOARN, perhaps supplemented by a voting process for all ratifying nations. This fund would ensure GOARN and the WHO have resources ready to immediately put measures in place to minimize the effect of a pandemic outbreak.

Next, the convention would specify that WHO employees and GOARN members are allowed access to ratifying states' populations for research and sample collection without needing permission from the state in question to enter the state's territory. This requirement is intended to prevent future incidents similar to Indonesia's refusal to share H5N1 samples with the WHO in 2006, which increase the likelihood of pandemic spread and decrease the international community's ability to provide aid to affected states. (Indonesia's issues with the global vaccine supply system are addressed later in this paper). However, WHO and GOARN would only be able to take samples with the assistance of domestic health care officials, to ensure proper treatment of infected persons and to notify the state of the occurrence.

Finally, the convention would strengthen WHO's enforcement capabilities if ratifying countries choose not to comply with the convention. Reliance on the tradition adherence international laws like the OPRC and Montreal Protocol would be the primary basis for enforcing the ICPPRC. However, the convention should also include that language establishes measures for punishing ratifying states that do not comply with the convention. These measures might include denying states access to the international pandemic emergency fund, as well as denying access to scientific data related to pandemic prevention produced by WHO and GOARN.

The ICPPRC would constitute an enormous step in improving international preparedness and response capability for a pandemic, but the U.S. and global community must also address the global health system in order to effectively support the adoption and implementation of the ICPPRC. To begin to address the global health system, the global community—led by the U.S.—needs to accomplish two critical tasks. First, the U.S. must spearhead a program to ensure vaccines are more accessible to Third World countries and developing countries that are most vulnerable to pandemic disease spread and the ensuing social instability that can result from pandemic disease spread. A salient example of the international community's failure to support developing countries with affordable and reliable vaccines is the H5N1 outbreak mentioned previously. Indonesia's argued that the WHO's handling of the development of H5N1 vaccines incident exposed inequities in the global influenza surveillance system.[87] Developing countries provided information and virus samples to the WHO-operated system, pharmaceutical companies in industrialized countries then obtained free access to such samples, exploited them, and patented the resulting products, which the developing countries could not afford.[88] A pandemic of global scale would place unprecedented demands on both international and

With the current budget-cutting atmosphere in Washington D.C., it will be all too easy for pandemic preparedness to fall by the wayside.

national health officials and vaccine companies.[89] "The planning effort will be more than a matter for experts in the fields of influenza virology, surveillance, and epidemiology; it must also involve experts in international politics, economics, and law."[90] As recommended by Dr. David Fedson, a global influenza vaccine fund "might be needed to facilitate multinational vaccine purchases and distribution, especially for countries with limited resources."[91] This fund could be implemented as part of the aforementioned international pandemic emergency fund, or as a separate fund that is constantly in use. The U.S. should take steps to improve the global vaccine supply system, making it equitable, affordable, and efficient.

Second, the U.S. and the international community must increase WHO funding to deal with basic healthcare needs and healthcare emergencies in failed states and developing countries. A prime example of the results of neglecting this issue is the international community's lack of financial support for improving healthcare in Somalia.[92] According to WHO spokesperson Paul Garwood, "WHO had requested, in the 2010 Consolidated Appeals Process for Somalia, $46 million, of which only 8 per cent have been funded so far."[93] The WHO's efforts in Somalia have resulted in millions of children receiving vaccinations and hundreds of medical staff receiving training in surgery and surveillance of disease outbreaks. However, the WHO is preparing to reduce these activities due to inadequate financial support, even as reported cholera cases continue to rise and the risk of more outbreaks is very high.[94] This is exactly the situation the United States and the international community cannot allow to occur. In the case of Somalia, the absence of a functioning government has led to piracy that has adversely affected international shipping, as 219 attacks on ships occurred in 2010.[95] Economic losses due to Somali piracy are estimated at between $3 and $5 billion since the pirates began their attacks in the mid 2000's.[96] Additionally, the failed Somali state stands as a fertile training and recruitment area for extremist Islamic groups. The U.S. and the international community must ensure that WHO has sufficient funding to increase basic health care services in developing countries, especially those that teeter on the border of becoming failed states.

CONCLUSION

International coordination for the prevention and response of major infectious disease outbreaks is insufficient under current WHO and IHR capacities. In order to address national sovereignty, primarily "soft law" IHR, and failed/fragile state challenges to effective international policy, a global convention on pandemics called "The International Convention on Pandemic Preparedness, Response and Cooperation" should be established. This convention will strengthen GOARN in disease surveillance, enforce and strengthen IHR among ratifying countries, as well as ensure the U.S. takes the lead in making vaccines and funding for basic healthcare services and healthcare emergencies readily available to vulnerable developing states. Cronin speaks to the importance of the latter:

Countries beset by poor governance and low levels of state capacity have failed in today's world to contain and manage the spread of a contagion and mitigate its economic and political toll. The data here are compelling: 75 percent of epidemics during the last three decades have occurred in countries where war, conflict, and prolonged political violence have crippled their capacity to respond, leaving their neighbors and the world vulnerable. (Cronin 105-106).[97]

The reactionary pattern of international law on infectious diseases can no longer be considered adequate among an international community at risk of disastrous pandemics from unknown, future repositories of virulent diseases. In other words, instead of creating law in response to an outbreak, states neglecting public health and failing to report disease events to authorities, and then more guidelines being recommended, states need to work multi-laterally with a strong organization defining and enforcing acceptable behavior. As Taylor notes, "Objective conditions of international life, as reflected by the rapid international spread of disease in general, and the HIV/AIDS pandemic in particular, evidence the ever-increasing urgency and inter-dependence of global health conditions.

Taking steps to improve the international community's pandemic preparedness will not be an easy task, especially as the world continues to recover from the 2007-2009 global recession. With the current budget-cutting atmosphere in Washington D.C., it will be all too easy for pandemic preparedness to fall by the wayside of national legislation. However, the stakes are high—the world can ill afford another global outbreak of disease on the scale of the 1918 influenza pandemic. The United States must step into its role as a global leader and meet the pandemic threat head-on before it strikes while the world is unprepared.

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